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RCA 90045
BELOTSERKOVSKY ET AL.
MECHANISM FOR OFDM EQUALIZER TAP INITIALIZATION USING AN ADAPTIVE ALGORITHM
Vincent E. Duffy - Telephone (317) 587-4019
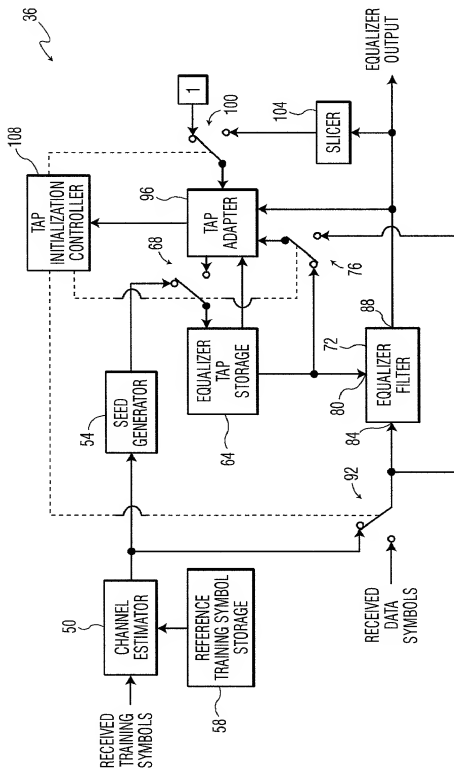
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FIG. 1

FIG. 2

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200

210 — **RECEIVE ACTUAL TRAINING SYMBOL (y)**

220 — **GENERATE CHANNEL ESTIMATE**
$\underline{C}= c + jd= (y) * (1/x)$

230 — **GENERATE MAGNITUDE SQUARED OF CHANNEL ESTIMATE**
$m^2= (c * c)+(d * d)$

240 — **GENERATE QUANTIZED MAGNITUDE SQUARED OF CHANNEL ESTIMATE, TO A POWER OF 2**
$(m_Q{}^2)$

250 — **GENERATE COMPLEX CONJUGATE OF CHANNEL ESTIMATE**
$(c-jd)$

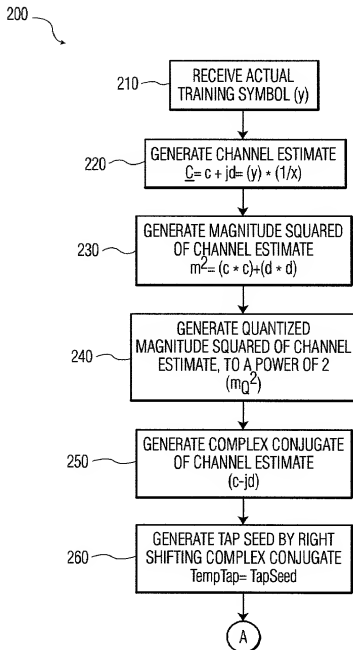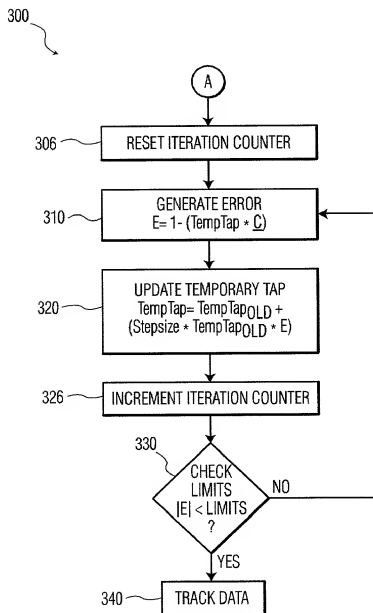260 — **GENERATE TAP SEED BY RIGHT SHIFTING COMPLEX CONJUGATE**
TempTap= TapSeed

(A)

FIG. 3

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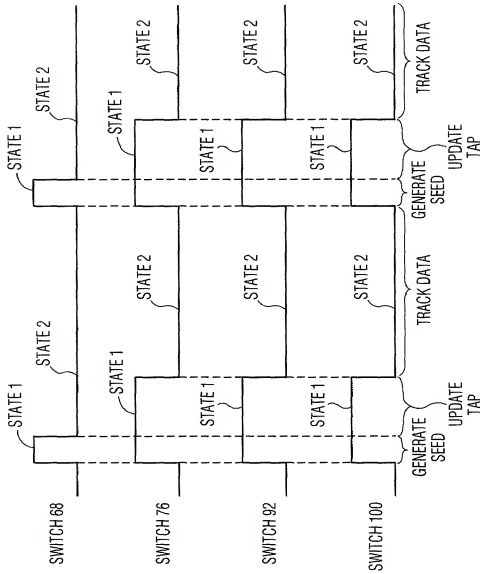Vincent E. Duffy - Telephone (317) 587-4019

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300

```
        ( A )
         │
         ▼
306 ─ RESET ITERATION COUNTER
         │
         ▼
310 ─ GENERATE ERROR
      E= 1- (TempTap * C)  ◄──────┐
         │                         │
         ▼                         │
320 ─ UPDATE TEMPORARY TAP         │
      TempTap= TempTap_OLD +       │
      (Stepsize * TempTap_OLD * E) │
         │                         │
         ▼                         │
326 ─ INCREMENT ITERATION COUNTER  │
         │                         │
         ▼                         │
330                                │
       ◇ CHECK                     │
         LIMITS      NO            │
        |E| < LIMITS ─────────────┘
           ?
         │ YES
         ▼
340 ─ TRACK DATA
```

$E = 1 - (\mathrm{TempTap} * \underline{C})$

$\mathrm{TempTap} = \mathrm{TempTap_{OLD}} + (\mathrm{Stepsize} * \mathrm{TempTap_{OLD}} * E)$

$|E| < \mathrm{LIMITS}$?

FIG. 4

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FIG. 5